



## PRELIMINARY IMPACT ANALYSIS

**PROPOSAL:** This proposal seeks to review Australian Standard and New Zealand Standard (AS/NZS) 3500, *Plumbing and Drainage Parts, 1, 2, 3 and 4* to include requirements for plumbing and drainage in designated bushfire prone areas.

Responsible Technical committee: Australian Standard Committee WS-014 Plumbing and Drainage

**NCC REFERENCE:**  
For revisions or amendments to existing National Construction Code (NCC) referenced documents, provide additional information

**BCA Volume One:**

AS/NZS 3500.1 - N/A  
AS/NZS 3500.2 - N/A  
AS/NZS 3500.3 - F1.1  
AS/NZS 3500.4 - N/A

**BCA Volume Two:**

AS/NZS 3500.1 - N/A  
AS/NZS 3500.2 – N/A  
AS/NZS 3500.3 - 3.1.2.0, 3.1.3.4, 3.5.3.0, 3.5.3.3, 3.5.3.5  
AS/NZS 3500.4 – N/A

**PCA Volume Three:**

AS/NZS 3500.1 – B1.4, B3.3, B4.2, B5.2, B5.3, B5.4, BS5.1.2, B6.4, B6.5  
AS/NZS 3500.2 – C1.3, CV2.2, C2.3, C2.4  
AS/NZS 3500.3 – N/A  
AS/NZS 3500.4 – B2.2, B2.6, B2.7, B2.8, B2.9

**PROPONENT:**

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**NATURE AND EXTENT OF THE PROBLEM:**

All developments on land that is designated as bush fire prone have a legal obligation to consider bush fire and meet the requirements of Planning for Bush Fire Protection in each local jurisdiction and Australian Standard 3959:2009.

AS 3959 contains requirements for plumbing (water services and sanitary plumbing and drainage systems) which unfortunately plumbing practitioners are not aware as it is not referenced within NCC Volume Three nor are the appropriate provisions contained in the appropriate parts of AS/NZS 3500 series.

One of the primary issues is a lack of awareness and understanding of the plumbing and drainage requirements legislated under the Building Code of Australia through AS 3959 Construction in bushfire prone areas.

Although the ABCB’s Plumbing Code Committee attempted to resolve this issue through the introduction of informative references to the Building Code of Australia, the issue remains that plumbers are not aware of the additional requirements for plumbing and drainage installations within bushfire prone areas which, from reports from plumbing regulators is causing confusion and leading to ongoing non-compliance.

Areas of additional plumbing and drainage requirements contained within AS 3959 include:

- Vents
- Penetrations
- Gutters and downpipes
- Roofing
- Eave linings, fascia’s and gables
- Above ground water and gas pipes
- etc.

Another issue related to but not being sought to be addressed at this time is the plumbing and drainage requirements contained within AS 3959 is that when complied with are considered to be a potential impact of the effectiveness of the sanitary drainage system through inadequate ventilation of both the on-site sanitary plumbing and drainage systems and network utility operators sewer mains (in non-boundary trap areas). This issue has the potential to lead to a loss of amenity to building occupants and pipework blockages.

As construction is continuing to expand outside of the major capital cities and metropolitan areas it is envisioned that this issue will continue to increase.

National Construction Codes Volume 1 and 2 require buildings that are constructed in a designated bushfire prone area must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire and constructed to AS 3959.

National Construction Code Volume 3 does not reference AS 3959, although the Australia Standard outlines requirements for plumbing and drainage installations.

This issue has been reported to be causing confusion in industry and has been reported by some of the State and Territory Administrations to the ABCB Office. This resulted in the project proposal being developed to amend the AS/NZS 3500 suite to incorporate the plumbing requirements of AS 3959. This project proposal was supported by both the ABCB Plumbing Code Committee and Standards Australia's WS-014 committee.

Upon further consideration of the proposed amendment, the WS-014 committee have agreed that the desired outcomes would be better achieved through directly referencing AS 3959 through Volume Three of the NCC as this would enable the content to remain with the appropriate Standards Australia committee.

## **OBJECTIVES:**

The primary objective of this proposal is to ensure that plumbing systems installed in buildings in designated bushfire prone areas do not create an increased risk to the building such as providing an entry point for flame and embers. Thus assisting in addressing risks of safety of any occupants or loss as a result of bushfire entry which could have been prevented.

Secondary objectives relate to the removal of issues relating to compliance and enforcement of additional plumbing and drainage requirements in designated bushfire prone areas, through ensuring that plumbing practitioners are aware of and comply with these requirements.

## **OPTIONS:**

There are a number of options available, including:

- Option 1: Status quo – no change

This option would see no change to both the AS/NZS 3500 series and the Plumbing Code of Australia.

- Option 2: Non-regulatory option.

This option would consider additional non-regulatory options, however as a non-regulatory option has been attempted within the PCA through explanatory information in the form of a cross-code consideration. For this reason a non-regulatory approach has been discounted from this analysis.

- Option 3: Informative amendment to standard (PCA amended to reference AS 3959).

Under option Three, AS/NZS 3500 Parts 1, 2, 3 and 4 would be amended to include an informative note referencing the PCA, which references AS 3959 for the design and construction of the relevant service in designated bushfire prone areas (see examples below).

#### [Example amendment to AS/NZS 3500 Parts 1](#)

Note: similar amendments are proposed for Parts 2, 3 and 4.

##### **Existing requirement – AS/NZS 3500.1 Bushfire zones**

In Australia, in areas designated as bushfire-prone areas by an authority having jurisdiction, all exposed piping shall be metal. Pipes of other materials shall be buried with a minimum depth of cover of 300 mm, measured from the proposed finished surface level to the top of the pipe.

NOTE: The NCC includes requirements for water supply piping in bushfire zones.

##### **Proposed amendment – AS/NZS 3500.1 - Designated bushfire prone areas (See attachment A)**

NOTE: In Australia, additional requirements for water services in designated bushfire prone areas are outlined in the NCC.

#### [Example amendment to NCC Volume Three](#)

##### **Proposed amendment – NCC Volume Three - Designated bushfire prone areas (See attachment A)**

Example for cold water services - 'In bushfire prone areas, the design and construction of a cold water service must be in accordance with AS 3959'.

- Option 4: Normative amendment to standard.

This option would have AS 3959 referenced within AS/NZS 3500 Parts 1, 2, 3 and 4. This option would see AS 3959 as a secondary referenced document through the Volume Three (the PCA) and continue to be a primary referenced document in the Volumes One and Two of the National Construction Code (the Building Code of Australia).

Under this option an alternative consideration is given to the duplication of plumbing related content from AS 3959 to the relevant parts of AS/NZS 3500 series.

## **IMPACT ANALYSIS (OF ALL OPTIONS):**

Analysis of the available options are considered below

- Option 1: Status quo – no change

Under the status quo option no change would occur and the issues described in the above section would continue to occur.

- Option 3: Informative amendment to standard (PCA amended to reference to AS 3959).

The above amendments to AS/NZS 3500 Parts 1, 2, 3 and 4 (including amendment to the NCC Volume 3) will better align building and plumbing requirements for safe building practices. This

inclusion will benefit the community by reducing industry confusion and providing plumbing practitioners with access to more information to meet performance requirements.

This is achieved through each part of AS/NZS 3500 referring the reader to the NCC in regards to the requirements for construction in designated bushfire prone areas and all three volumes of the NCC referencing AS 3959 as primary referenced documents.

The impact of the proposed change is considered to be positive through making plumbing practitioners aware of the additional requirements when designing and installing plumbing systems in bushfire prone areas. It would also ensure plumbing practitioners are also aware of the additional requirements for buildings, whilst this would not fall within the plumbing practitioner's responsibility to ensure compliance additional knowledge of the interactions between building and plumbing requirements are considered a positive outcome. There is not considered to be any additional regulatory requirements proposed by this change as compliance with AS 3959 is already a requirement for plumbing practitioners through building and/or planning legislation.

As these additional requirements for plumbing and drainage systems have been agreed to be included in the public comment draft of the PCA (and plumbing legislation), this is considered to appropriately address the issues raised in regards to the responsibility of compliance, as enforcement of the plumbing requirements of AS 3959 will fall under the responsibility of plumbing regulator and the building requirements of AS 3959 under the compliance responsibility of building certifiers.

- Option 4: Normative amendment to standards (AS/NZS 3500.1, 2, 3 and 4).

Whilst it is considered that similar benefits could be achieved through this option, when investigated by Standards Australia's WS-014 working group, the option to duplicate the content of AS 3959 into AS/NZS 3500 was considered that this option presented some potential issues. These issues included the risk for requirements to become inconsistent between AS 3959 and AS/NZS 3500. Another concern raised from the working group was that the Standards Australia committee responsible for AS 3959, FP-020, held greater expertise than WS-014 in regards to bushfire prone area construction and that the responsibility for the provisions best resided with FP-020. This would also ensure that the plumbing and building provisions would continue to align.

The WS-014 working group also considered referencing AS 3959 within each part of AS/NZS 3500 however this was not the preferred option as it was considered that this would cause a regulatory misalignment between plumbing and building legislation, primarily between the Building Code of Australia and the PCA, with AS 3959 being a primary reference in building and a secondary in plumbing. The benefits to this option were considered the same as referencing within the PCA, with the negatives of this misalignment.

## **TRANSITIONAL MEASURES**

No transitional measures are considered required to accompany any of these options as the proposal could be considered policy neutral as compliance is already required through other state and territory legislation.

**CONSULTATION:**

Consultation has occurred on a number of occasions with a number of stakeholders, including:

The Plumbing Code Committee (PCC) and WS-014 on the project proposal to amend AS/NZS 3500 to address this issue.

WS-014 on the development of a Proposal for Change (PFC) to NCC Volume Three, resulting in the PCC reviewing the information contained within the PFC outlining the issue and proposed solution at their 2020-1 meeting.

Both the amendments to the PCA and AS/NZS 3500 series will be released for public consultation in the first half of 2020.

Note: When consulted, the Association of Hydraulic Service Consultants as a member of WS-014 have indicated a preference for Opting 4, to duplicate the relevant requirements in both AS 3959 and the relevant parts of the AS/NZS 3500 series.

**CONCLUSION AND RECOMMENDED OPTION:**

Based on this analysis, option 3, the amendment of AS/NZS 3500, Parts 1, 2, 3, and 4 to include an informative reference to the PCA, and the PCA directly referencing AS 3959 was considered the most appropriate option to address this issue.

**IMPLEMENTATION AND REVIEW:**

Both the revisions to the AS/NZS 3500 series and the PCA (which intends to reference the revised standards) are proposed for adoption in 2022.

**LIST OF ATTACHMENTS:**

Provide a list of attached supporting documents.

Attachment 1 – PFC Bushfire Alignment

**Attachment A: SCHEDULE OF MAJOR CHANGES**

No.	Clause / Ref	Proposed Change	Justification / Reason for Change	Cost implications
1	AS/NZS 3500.1 Clause TBA	NOTE: In Australia, additional requirements for water services in designated bushfire prone areas are outlined in the NCC.	To direct readers to the location of the bushfire requirements.	Nil
2	AS/NZS 3500.2 Clause TBA	NOTE: In Australia, additional requirements for sanitary plumbing and drainage systems in designated bushfire prone areas are outlined in the NCC.	To direct readers to the location of the bushfire requirements.	Nil
3	AS/NZS 3500.3 Clause TBA	NOTE: In Australia, additional requirements for stormwater systems in designated bushfire prone areas are outlined in the NCC.	To direct readers to the location of the bushfire requirements.	Nil
4	AS/NZS 3500.4 Clause TBA	NOTE: In Australia, additional requirements for heated water services in designated bushfire prone areas are outlined in the NCC.	To direct readers to the location of the bushfire requirements.	Nil
5.1	Plumbing Code of Australia Part B1	Example 'In bushfire prone areas, the design and construction of a cold water service must be in accordance with AS 3959.'	To ensure plumbing practitioners are aware of and comply with AS 3959.	Nil
5.2	Plumbing Code of Australia Part B2	Example 'In bushfire prone areas, the design and construction of a heated water service must be in accordance with AS 3959.'	To ensure plumbing practitioners are aware of and comply with AS 3959.	Nil
5.3	Plumbing Code of Australia Part B3	Example 'In bushfire prone areas, the design and construction of a non-drinking water service	To ensure plumbing practitioners are aware of and comply with AS 3959.	Nil

No.	Clause / Ref	Proposed Change	Justification / Reason for Change	Cost implications
		must be in accordance with AS 3959.'		
5.4	Plumbing Code of Australia Part C1	Example 'In bushfire prone areas, the design and construction of a sanitary plumbing system must be in accordance with AS 3959.'	To ensure plumbing practitioners are aware of and comply with AS 3959.	Nil
5.4	Plumbing Code of Australia Part C2	Example 'In bushfire prone areas, the design and construction of a sanitary drainage system must be in accordance with AS 3959.'	To ensure plumbing practitioners are aware of and comply with AS 3959.	Nil



**PROPOSAL FOR CHANGE  
NATIONAL CONSTRUCTION CODE SERIES**

<b>SUBJECT</b>	<b>Bushfire Alignment</b>
<b>BCA Volume One:</b>	N/A
<b>BCA Volume Two:</b>	N/A
<b>Guide to Volume One:</b>	N/A
<b>PCA Volume Three:</b>	Vol. Three - Parts B1, B2, B3, B6, C1 & C2.

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**The Proposal**

The purpose of the proposal is to reference AS 3959 within the applicable sections of Volume Three of the National Construction Code, such as for water services (Section B – B1, B2, B3 and B4) and sanitary plumbing and drainage systems (Section C – C1 and C2).

**The Current Problem**

All developments on land that is designated as bush fire prone have a legal obligation to consider bush fire and meet the requirements of Planning for Bush Fire Protection in each local jurisdiction and Australian Standard 3959 – 2009

Currently the Deemed-to-Satisfy requirements for plumbing state the following through primary referenced document AS/NZS 3500.1:2018.

*“In Australia, in areas designated as bushfire-prone areas by an authority having jurisdiction, all exposed piping shall be metal. Pipes of other materials shall be buried with a minimum depth of cover of 300mm, measured from the proposed finished surface level to the top of the pipe.”*

There is no additional requirements for plumbing through the Plumbing Code of Australia.

AS 3959 contains requirements for plumbing (water services and sanitary plumbing and drainage systems) which unfortunately plumbing practitioners are not aware as it is not referenced within NCC Volume Three nor are the appropriate provisions contained in the appropriate parts of AS/NZS 3500 series.

This issue has been reported to be causing confusion in industry and has been reported by some of the State and Territory Administrations to the ABCB Office. This resulted in the

project proposal being developed to amend the AS/NZS 3500 suite to incorporate the plumbing requirements of AS 3959. This project proposal was supported by both the ABCB Plumbing Code Committee and Standards Australia's WS-014 committee.

Upon further consideration of the proposed amendment, the WS-014 committee have agreed that the desired outcomes would be better achieved through directly referencing AS 3959 through Volume Three of the NCC as this would enable the content to remain with the appropriate Standards Australia committee.

### **The Objective**

The objective of this proposal is to include a direct reference to AS 3959 within the appropriate sections of Volume Three of the NCC to require the installation of water services and sanitary plumbing and drainage systems to comply with the requirements of AS 3959 when located in a bushfire prone area. This would enable plumbing practitioners to be aware of the design and construction requirements of the Australian Standard that are already a legislated requirement through planning and building legislation.

An example of the Deemed-to-Satisfy provisions which could be inserted is provided below to provide a more detailed overview of the desired outcome. Similar drafting could be replicated for other applicable water services and sanitary plumbing and drainage. An appropriate Performance Requirement may be required to be developed by the ABCB Office in consultation with the ABCB's Plumbing Code Committee.

#### **Example**

'In bushfire prone areas, the design and construction of a cold water service must be in accordance with AS 3959.'

It is also suggested that a definition for 'bushfire prone areas' be inserted into the NCC to provide users more details on how to determine if an area is defined as bushfire prone.

### **The Impacts**

National Construction Codes Volume 1 and 2 require buildings that are constructed in a designated bushfire prone area must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire and constructed to AS 3959.

National Construction Code Volume 3 does not reference AS 3959, although the Australia Standard outlines requirements for plumbing and drainage installations.

The above amendments to NCC Volume 3 will better align building and plumbing requirements for safe building practices. This inclusion will benefit the community by reducing industry confusion and providing plumbing practitioners with access to more information to meet performance requirements.

The impact of the proposed change is considered to be positive through making plumbing practitioners aware of the additional requirements when designing and installing plumbing systems in bushfire prone areas. It would also ensure plumbing practitioners are also aware of the additional requirements for buildings. There is not considered to be any additional regulatory requirements proposed by this change.

It is anticipated that there will not be any negative impacts of this proposed change as the plumbing and drainage requirements of the Australian Standard are already referenced through the NCC and other planning legislation.

## **Consultation**

Consultation and support for the proposal has been received from the following organisations:

- Water New Zealand
- Plumbers, Gasfitters and Drainlayers Board
- Plastics New Zealand
- Master Plumbers Australia
- Australian Industry Group
- Plastics Industry Pipe Association of Australia
- Plumbing Products Industry Group
- Plumbing Distributors Association of New Zealand
- International Copper Association Australia
- Independent Chairperson (Australia)
- Master Plumbers, Gasfitters and Drainlayers New Zealand
- Australian Stainless-Steel Development Association
- Department of Building & Housing (New Zealand Government)
- Backflow Prevention Association of Australia (BPAA)